

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jason Mehigan (Reg. No. 64,307) on 11/12/2010 and 11/15/2010.

The application has been amended as follows:

Claim 1:

~~"A computerized computer-implemented~~ method comprising:
by a computer comprising a processor:

identifying, from a plurality of objects, a set of core objects for a data structure corresponding to a community of objects by identifying one or more objects that are referenced by at least a threshold number of other objects of the plurality of objects;

expanding, based on the set of core objects, the community of objects to include a set of affiliated objects, wherein the set of core objects and the set of affiliated objects are maintained as distinct entities within the data structure;

accessing at least one element of the data structure ~~with a processor of a computer;~~

assigning the set of core objects to a center portion of a user interface independent model;

assigning each affiliated object in the set of affiliated objects to a particular concentric portion around the center of the model; and

merging together a first community of a plurality of communities and a second community of the plurality of communities in response to a finding of similarity between the core objects in the first community and the core objects in the second community;

wherein identifying the set of core objects comprises:

identifying links between objects of the plurality of objects; ~~and~~

finding groups of objects of the plurality of objects that satisfy a link threshold; and

identifying, as a set of core objects, one or more of the groups of objects that satisfy the link threshold.

wherein the link threshold is determined by selecting a number of the plurality of objects that is at least 1-% percent of the total number of objects in the plurality of objects and multipl~~ing~~ an amplifying frequency factor by a weight sum of all links and ~~divide~~ dividing it by the number of the plurality of objects selected."

Cancel claim 9.

Claims 2 – 8 and 11 – 19:

In line 1 of each claim, change "A method as recited" to "A The method as recited".

Claim 20:

"One or more tangible ~~computer-readable~~ computer-readable storage media having stored thereon a plurality of instructions that, when executed by one or more processors of a device, causes the one or more processors to:

identify, from a plurality of objects, a first collection of objects to be a core of a community;

identify, from the plurality of objects, a second collection of objects that are linked to the first collection of objects wherein the second collection of objects are affiliated objects;

wherein identifying the first collection of objects to be the core of the community comprises:

identifying links between objects of the plurality of objects;

finding groups of objects of the plurality of objects that satisfy a link threshold; and

identifying, as a first collection of objects, one or more of the groups of objects that satisfy the link threshold.

wherein the link threshold is determined by selecting a number of the plurality of objects that is at least 1-% percent of the total number of objects in the

plurality of objects and multiplying an amplifying frequency factor by a weight sum of all links and ~~divide~~ dividing it by the number of the plurality of objects selected;

assign the first collection of objects to a center portion of a user interface independent model;

assign each object of the second collection of objects to a particular concentric portion around the center of the model; and

add to the community, the second collection of objects, wherein the first collection of objects and the second collection of objects are maintained as distinct entities within ~~the~~ a data structure."

Claim 22:

In lines 1 – 2, change "One or more tangible computer readable media as recited" to "The ~~One~~ one or more tangible ~~computer readable~~ computer-readable storage media as recited".

In line 8, change "communities; and" to "communities;~~and~~".

In line 10, change "objects" to "objects₁".

In line 12, change "objects;" to "objects; and".

Claims 23 – 24, 26 and 28:

In lines 1 – 2, change “One or more tangible computer readable media as recited” to “The One one or more tangible computer readable computer-readable storage media as recited”.

Claim 29:

“A system to mine communities from a plurality of objects, the system comprising:

a processor; and

a memory coupled to the processor, wherein the memory includes one or more instructions that cause the processor to, at least:

identify, ~~from the plurality of objects,~~ one or more core object sets from the plurality of objects by identifying one or more objects that are referenced by at least a threshold number of other objects of the plurality of objects, wherein each core object set is incorporated into a respective data structure defining a community; and

for each of the core object sets, expand the respective data structure defining the community to include a set of affiliated objects, wherein the expansion is based on the core object set of the community, and the core object set and the ~~associated~~ set of affiliated objects are maintained as distinct entities within each respective data structure,

wherein identifying the one or more core object sets comprises:

identifying links between objects of the plurality of objects;

finding groups of objects of the plurality of objects that satisfy a link threshold; and

identifying, as a core object set, one or more of the groups of objects that satisfy the link threshold;

wherein the link threshold is determined by selecting a number of the plurality of objects that is at least 1-~~%~~ percent of the total number of objects in the plurality of objects and multiplying an amplifying frequency factor by a weight sum of all links and ~~divide~~ dividing it by the number of the plurality of objects selected.”

Claim 30:

In line 1, change “A system as recited” to “A The system as recited”.

Claim 33:

“A system implemented at least in part in a computing device, the system comprising:

a processor;

a core set identification module to identify core sets of objects for data structures corresponding to communities from a plurality of objects by identifying one or more objects that are referenced by at least a threshold number of other objects of the plurality of objects; and

a community expansion module to expand the data structures corresponding to the communities by adding sets of affiliated objects to the data structures corresponding to the communities, wherein the expansion is based at least in part on at least one core set of objects, and each core set of objects and each set of affiliated objects ~~is~~ are maintained as ~~a distinct entity~~ entities within each respective data structures corresponding to ~~communities~~ a community; and

a core set merging module to merge together a first of the communities and a second of the communities in response to a finding of sufficient similarity between the core objects in the first of the communities and the core objects in the second of the communities;

wherein the finding of sufficient similarity is determined when smallest values from the first of the communities and the second of the communities divided by a set that includes all elements that the first and second communities have in common is less than ~~two~~ 2."

Claims 34 and 36 – 37:

In line 1, change "A system as recited" to "A The system as recited".

Claim 35:

In line 1, change "A system as recited" to "A The system as recited".

In line 3, change "objects; and" to "object; ~~and~~".

In line 6, change "community, and" to "community; ~~and~~".

Reason for Allowance

The following is a statement of reasons for the indication of allowable subject matter (Note: the allowable subject matter was also indicated in the Final Office Action mailed 5/28/2010):

Claims 1 – 9, 11 – 20, 22 – 24, 26, 28 – 30, 33 – 37 and 49 are allowed.

The invention is directed toward community mining based on "core objects" and "affiliated objects."

More particularly, the invention teaches organizing a large number of web pages into **communities of related web pages**, thereby allowing users to quickly and easily view the communities.

Claims 1, 20 and 29 teach the method of identifying communities using link threshold, which is determined by multiplying an amplifying frequency factor by a weight sum of all links, and dividing it by the number of objects selected.

Claim 33 teaches another method of identifying communities based on similarities between the objects, wherein sufficient similarity is found when smallest values from the communities divided by a set that includes all elements that are common to the communities is less than two.

The prior art Pitkow, further in view of secondary references, fails to disclose the aforementioned features in their entirety. Pitkow discloses the method of finding related collections of linked documents using co-citation analysis. However, **Pitkow fails to disclose** that the identification of the communities is done by using **link threshold**,

which is determined by multiplying an amplifying frequency factor by a weight sum of all links, and dividing it by the number of objects selected. Pitkow also fails to disclose that similar object within a community is found when **smallest values from the communities divided by a set that includes all elements that are common to the communities is less than two.** These two specific features distinguish the claimed invention from the prior art, and the combination of the Pitkow reference with any of the secondary references failed to render the claims obvious.

For the foregoing reasons, independent claims 1, 20, 29 and 33, and their dependent claims 2 – 9, 11 – 19, 22 – 24, 26, 28 – 30, 34 – 37 and 49 are allowable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANGWOO AHN whose telephone number is (571)272-5626. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on (571)272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jay A Morrison/
Primary Examiner, Art Unit 2168

11/13/2010
/S. A./
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